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African science looks to the heavens

By Don Johnston
NEWSLINE STAFF WRITER

The construction of the southern hemisphere's largest telescope in South Africa is vital to "transforming the relationship of science and society" in the country and allowing African people to "construct a future around them," Khtoso Mokhele told a Lab audience Monday.

Mokhele, president of South Africa's National Research Foundation, delivered a Director's Distinguished Lecturer Series presentation entitled "Astronomy in a Developing Economy: Advancing Science and Technology in the New South Africa."

Acknowledging that the title of his talk was "a bit crazy, really a bit nuts" and prompts the question "why would a developing country and developing economy want to build telescopes?" Mokhele persuasively presented his case for construction of the Southern African Large Telescope (SALT).

"I'm going to try to convince you this afternoon that there is no way we should not be doing the things that this project represents," he said. "We



BOB HIRSCHFELD/NEWSLINE

Khtoso Mokhele said the Southern Africa Large Telescope, to be completed in December, will be available to all African researchers.

more than you need to build telescopes and think of projects of this nature."

Citing remarks made by President Harry Truman's science adviser Vannevar Bush after World War II, Mokhele said, "Science is an effective tool for the welfare of nations."

Following World War II, there was a push to develop science in South Africa, but the institution

See **MOKHELE**, page 7

Distant pollution sources affect cloud formations that influence global climate

By Anne M. Stark
NEWSLINE STAFF WRITER

A team of scientists, including Laboratory computer scientist David Stevens, led by researchers from NASA Ames Research Center have determined a close tie between distant sources of pollution and their effect on the formation of clouds that influence global climate.

The team, with additional collaborators from the National Center for Atmospheric Research, University of North Dakota, Hampton University, Universidad Nacional Autonoma de Mexico, Stratton Park Engineering Company Inc., University of Denver, California Institute of Technology and Center for Remotely-Piloted Aircraft Studies, reports its most recent findings in today's (April 30) edition of the journal *Science*.

The study focused on tropical anvil cirrus clouds, an important but poorly understood element of the Earth's climate system. These clouds have been found to respond strongly to increasing sea surface temperatures and consequently play a major role in global climate change. By comparing measurements of aerosols and cloud particles from the NASA CRYSTAL-FACE field experiment to detailed cloud simulations, the researchers found that most anvil ice crystals form on mid-tropospheric (6-10 kilometers above the Earth's

See **AEROSOLS**, page 7

Laboratory makes news with separate hearings on environment and security

Two separate hearings, conducted a continent apart, resulted in plenty of headlines as well as confusion over the future of the Superblock and other operations at the Laboratory.

Members of the news media, who covered the hearings, and activist groups tried to link the two hearings as the same issue. One hearing, held on the East Coast dealt with security, while the other, held in Livermore, involved environmental compliance.

In Washington D.C., Rep. Christopher Shays (R-Conn.), chairman of the House Subcommittee on National Security, Emerging Threats and International Relations, held a hearing on threats and vulnerabilities at NNSA facilities. Principal witnesses included NNSA's Ambassador Linton Brooks and representatives of the Project On Government Oversight

See **HEARINGS**, page 4

JGI jamboree examines toxin-eating microbe

David Gilbert
NEWSLINE STAFF

Although there were no s'mores munched around a campfire, those who participated in the Department of Energy Genomics: GTL Jamboree at the Joint Genome Institute (JGI) last week did receive their just rewards.

Armed with laptops and internet access, some forty microbiologists, biochemists and computational scientists, representing a dozen different labs, charted the unseen metabolic processes of one stinky "bug" that goes by the name of *Desulfobacterium desulfuricans* G20. Not a bug per se, G20 is a microbe with a robust appetite for such toxic metals as uranium and chromium from a family known as sulfate-reducing bacteria or SRB. Isolated from a corroded oil well in the late 1980s, the G20 strain was recently sequenced by the JGI.

Organized by Berkeley Lab's Virtual Institute for Microbial Stress and Survival (VIMSS), jamboree members clambered to



Jamboree participants came from far and near to annotate SRB. VIMSS Director Adam Arkin (standing) and Eric Alm of VIMSS, join Dmitry Rodionov of the Institute for Problems of Information Transmission in Russia, and VIMSS co-investigator Inna Dubchak in testing out the comparative genomics tools.

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Flexing Administrative muscle
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Extreme generosity helps local family
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Phish story starts new security rubric
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LAB COMMUNITY NEWS

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Friday
30

A call has been issued from the UC Office of the President for **Campus-Lab-Colaboration (CLC) and Campus-Lab-Exchange (CLE)** proposals. The RFP can be found at <http://labs.ucop.edu/internet/research/>. Proposals are due today. For more information, contact Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

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The Benefits Office will continue the brown-bag series on **how to enhance your financial security** by participating in the Tax-Deferred 403(b). The next session will be held from 12:15 - 1:15 p.m. today in Bldg. 571, conference room 2301. Additional sessions will be held on the last working day of each month (excluding November and December) throughout 2004. Attendance is open and no pre-registration is required. Bring your lunch and your questions. For additional information about benefit services or events, see the Website at www.llnl.gov/llnl/02employment/benefits/seminars.htm.

Saturday
1

"Pleasanton Historic Homes Stroll" will be held today from noon to 4 p.m. in downtown Pleasanton. Visit the inside of beautiful homes and stroll by others. Proceeds benefit the Museum On Main Street. Tickets are \$20 per person and include a refreshment stop at La Crema d'Italia and a historic home information booklet. The tour is presented by the Friends of Pleasanton Heritage. For information, call Rebecca Bruner (925) 426-3815.

Tuesday
4

Spring **Russian classes** start today and limited space is available. Employees who travel to Russia or host Russian-speaking visitors may want to sign up for one of the beginning, (ED7802-Beg) intermediate (ED7802-Int.) or advanced-level (ED7802-Adv.) Russian courses. These courses will provide the foundation of the Russian language by focusing on grammar and conversation. The instructors use a combination of textbooks, workbooks, audiotapes and videotapes to teach skills needed to carry on conversations (or just ask for directions) with Russian-speaking people. To register for the spring quarter, contact Marissa Mertes, 2-4842.



LAB

BROADCAST
SCHEDULE

A rebroadcast of the DDLS talk presented April 26 by Khtoso Mokhele about **"Astronomy in a Developing Economy — Advancing Science and Technology in the New South Africa,"** will air on Lab TV channel 2 at 10 a.m., noon, 2, 4 and 8 p.m. on Thursday, May 6, and at 4 a.m. on Friday, May 7.

Lab/UC Davis sponsor homeland security seminars

The UC Davis Office of Research and the Laboratory are jointly sponsoring a seminar series on homeland security.

The first of three seminars, scheduled for the spring quarter, will be Tuesday, May 4, from 3-5 p.m., at 1131 Kemper Hall, UC Davis. Robert Rodriguez, assistant special agent in charge of the U.S. Secret Service's San Francisco District Office, will present a seminar entitled, "Leading Change and Building Coalitions through a Public-Private Partnership."

Rodriguez manages Secret Service operations for the Northern District of California and has spearheaded the development of the Service's San Francisco Electronic Crimes Task Force. Private industry controls and operates 85 percent of the critical infrastructure for the nation. As a result, the Electronic Crimes Task Force is at the forefront of the Department of Homeland Security's effort to establish partnerships with key government, public, private and international stakeholders to create an environment that enables them to better protect their infrastructures. A part of this public-private partnership focuses on trust and confidence, awareness programs, proactive and preventive measures, development of information sharing mechanisms, and sector focused best practices and guidelines.

Prior to joining the U.S. Secret Service,

Rodriguez was a police officer in Long Beach from 1978 to 1982. He joined the Secret Service in 1982. He has had a wide variety of leadership assignments including the Los Angeles Field Office, the Presidential Protective Detail, the Vice Presidential Detail, the Counter Assault Team, and the Inspection Division. In 2001, he was promoted to his current rank of assistant special agent in charge of the San Francisco District. This district encompasses the northern half of California, from Bakersfield and Santa Maria up to the Oregon border.



Robert Rodriguez

Rodriguez' presentation will be rebroadcast

on Lab TV channel 2 during the week of May 12. Time to be determined.

The seminar series was developed to provide more opportunities for collaboration between UC Davis and LLNL. The Office of Research also recently established a faculty "working group," led by Karl Levitt, professor of computer science, to identify potential opportunities for large-scale collaborative research in cyber security.

For more information, call (530) 754-4331 or Harry Radousky, 2-4478, or Brenda Foster, 3-8257, at LLNL.

"Everything You Wanted to Know About Deaf People and Were Afraid to Ask" topic of talk by deaf expert

The Worklife Programs Office presents Andrew Lange, president of the National Association of the Deaf, to speak about "Everything You Wanted to Know About Deaf People and Were Afraid to Ask," Thursday, May 6, from noon to 1 p.m. in Bldg. 571, room 1301.

Lange is an expert on deafness. There are three generations of deafness in Lange's family; all of his immediate family members are deaf.



Andrew Lange

A prolific speaker and presenter, Lange has presented at numerous conferences and conventions in the United States.

He is president of the Gallaudet University Alumni Association and chief operating officer of Hands on Video Relay and Sign Language Services in Rocklin, Calif.

The talk is sponsored by the Worklife Programs Office.

Amigos Unidos to host Cinco de Mayo celebration

The LLNL Amigos Unidos Hispanic Networking Group will hold its annual celebration of Cinco de Mayo on Wednesday, May 5, at the picnic area by the pool. Come and enjoy the cultural festivities including food plates — carnitas, chile colorado, tamales, and of course, plenty of Latin music and dancing. Lunch plates are \$6. Along with the food and entertainment, Amigos Unidos will be presenting scholarship awards to selected college-bound high school students from the surrounding communities. Scholarships are funded by tamales sales and support from the Worklife Programs Office. Pre-ordered tamales will be distributed at the event. Tamale sales help pay for the scholarships.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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NEWS OF NOTE



Asian Pacific American Heritage Month to kick off

Asian Pacific American Heritage Month kicks off next week with events at Sandia National Laboratory.

A diversity talent show will be held from 11:30 a.m. to 12:30 p.m. Tuesday, May 4, in Sandia's Bldg. 904 auditorium. An origami workshop will follow from 11:30 a.m. to 12:30 p.m. Thursday, May 6, in Sandia's Bldg. 942, room 1317.

Opening events at the Laboratory will be

NNSA Livermore Site Manager Camille Yuan-Soo-Hoo, who will deliver a keynote address at 11:30 a.m. Tuesday, May 11, in the Bldg. 123 auditorium. Washington State Senator and author Paull Shinn will speak at noon Thursday, May 13, in the Bldg. 123 auditorium.

The Lab's annual Asian Pacific American Heritage Month Festival Day



Camille Yuan-Soo-Hoo

will be held starting at 11:30 a.m. Tuesday, May 18 in the lawn/pool area. Look for additional information about these and other events in *Newsline* and *NewsOnLine*. For information about LLNL events, contact Ricky Chau, 3-4388, or Ravi Upadhye, 3-1299.

BRIEFLY

Taxi service suspended

Beginning in May, taxi service will be suspended on the last Friday of each month from noon until 1 p.m., so drivers can attend a taxi section, Fleet Management safety meeting. Please plan for alternate transportation during that hour each month. Contact Beverlee Morales of Fleet Management, 2-7481, if you have questions.

Lab security officers compete in shooting competition

A team of Laboratory security officers will participate in a DOE shooting competition in Savannah River, South Carolina starting this weekend. Jim Balch, Scott Batson, Joshua Basso, Daniel Repose, Tony Pirone and John Sims will compete against other teams in the DOE complex. Lonnie Alvey and Kevin Morris are team coaches. Results and progress reports will be posted on the Web at: www.sotc.doe.gov

New revisions to the ES& H manual

Document 13.1, "Biological Controls and Operations" has been revised to authorized LLNL research and operations to include Biosafety Level 3 (BSL-3) containment. The document allows operations involving microbial Risk Group 3 agents, microorganisms, and toxins identified as Select Agents by the CDC and the USDA. The document was also updated to reflect changes in the Select Agent Regulations. Document 13.1 is available online at: http://www.llnl.gov/es_and_h/hsm/doc_13.01/doc13-01.html

Document 4.3, "LLNL Implementing Procedures for DOE Order 231.1A and DOE Manual 231.1-2, Occurrence Reporting and Processing of Operations Information" has been revised. The approval process has been simplified, and a new Causal Tree has been established. The criteria for an occurrence report have been reduced from 129 to 69 items, while the significance categories have been increased from three to six. Security incidents and dollar value losses are no longer reportable as occurrences. Document 4.3 is available online at: http://www.llnl.gov/es_and_h/hsm/doc_4.03/doc4-03.pdf

EEO training course for supervisors

A 30-minute video training course for managers and supervisors on equal employment opportunity compliance, and compliance with the women's lawsuit settlement agreement will be made available next week. All managers and supervisors are required to complete the Web-based training before May 30, 2004.

The course is entitled "Supervisory Responsibilities in EEO and Diversity" (ED2110-W). Credit will be given automatically upon completion through L-Train. Supervisors and managers must complete the training before preparation of performance appraisals or participation in ranking sessions.

"Supervisory Responsibilities in EEO and Diversity" is entirely Web-based. More information on accessing this course will be available next week.

Want to be a leader in project management?

Be out in front as the Laboratory moves into the project management world. Get the latest innovations in project management by attending the Second University of California Symposium, "Excellence in Project Execution," on May 19 and 20, in Pleasanton.

UC President Dynes releases video letter






UC President Robert Dynes has issued a video letter to UC faculty and staff with updates on the national laboratories, freshman admissions and the State budget. To view the video letter, go to <http://www.universityofcalifornia.edu/news/video/welcome.html> and select the video format appropriate for your

This year the symposium will focus on improving project managers' capabilities to successfully execute projects. Presentations by experts on critical areas of project execution and hands-on breakout sessions on specific project management issues will increase your knowledge and improve your skills. You will also have a unique opportunity to interact with national PM experts and a large segment of the UC laboratory project manager community.

The symposium agenda, registration form, and other information is on the symposium Website at <http://labs.ucop.edu/internet/pmsymp>. Register soon because space is limited.

Lessons Learned

<p>Be ergonomically aware!</p>  <p>Be proactive to prevent a Repetitive Motion Injury (RMI). Get the right equipment. Learn to use it properly.</p>	<p>Work at computers safely</p>  <p>If you use a computer, get an ergonomic evaluation. Talk to your supervisor or call the 2-ERGO hotline.</p>	<p>Other activities can cause RMI</p>  <p>Think ergonomics when moving objects, cable pulling, pipetting, handling mail, retrieving files, or using hand tools.</p>
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Sponsored by the SEP Directorate

<p>Recommended actions</p> <ul style="list-style-type: none">• Use the Lab's ergonomic resources. Info is available at http://llnl.gov/ergo• Get educated! LLNL provides ergonomic training.• Take short, periodic breaks when doing repetitive activities.• Contact your supervisor and report to Health Services if you experience pain or discomfort.
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NEWS YOU CAN USE

HEARINGS

Continued from page 1

(POGO). The hearing was held at the same time a GAO report was released on security across the NNSA complex.

POGO, a private watchdog group, recommended moving Livermore’s plutonium operations to another site, while Brooks testified, “...to eliminate special nuclear materials at the Lawrence Livermore National Laboratory, our judgment is that such a step would preclude our carrying out important stockpile stewardship assessments.”

Whatever the ultimate outcome will be, the final decision will be made in Washington.

And on that same day, two public comment hearings on the Lab’s Site-Wide Environmental Impact Statement took place in Livermore. The hearings were followed by similar sessions in Tracy ; a session will be held in Washington, D.C. today.

The sessions give the public the opportunity to comment on the filing of the pending SWEIS, which covers projections for the operations of the Laboratory during the next decade. The SWEIS document, compiled jointly by DOE/NNSA and the Lab, complies with the National Environmental Policy Act.

One scenario for future operations included increasing the Lab’s plutonium activities and inventory. Representatives from the NGO community, including Tri-Valley CAREs, showed up to make formal comments.

Press coverage of the hearings can be accessed on the Lab’s daily clips page on the Web at <https://www-r.llnl.gov/portal/intranet/news/newsclips.html>.

An Ergonomic Tip

Think 20/20/20



A nice way to give your eye muscles a break is to take 20 seconds every 20 minutes to focus on an object 20 feet away.

Advice to keep you safe.
Visit the Ergonomics Website:
<http://www.llnl.gov/ergo>



Technical Meeting Calendar

Friday
30

PHYSICS & ADVANCED TECHNOLOGIES/ N DIVISION

“HBT Measurements in Relativistic Heavy-Ion Collisions,” by Akitomo Enokizono, Hiroshima University. 1:30 p.m., Bldg. 211, room 227, badge required. Contact: Ron Soltz, 3-2647, or Pat Smith, 2-0920.

Monday
3

PHYSICS & ADVANCED TECHNOLOGIES/ N DIVISION

“BRAHMS Results from Mid-rapidity to y ~ 3 in Central Au+Au Collisions at sqrt(sNN) = 200 GeV,” by Jens Ivar Jorde, University of Bergen, Norway. 1:30 p.m., Bldg. 211, room 227, badge required. Contact: Ron Soltz, 3-2647, or Pat Smith, 2-0920.

BIOSECURITY & NANOSCIENCES LABORATORY

“Molecules Have Size: Effects of Molecular Size on Intermolecular Hopping,” by David Emin, University of New Mexico. 2 p.m., Bldg. 151, room 1209 Stevenson Room. Contact: Joe Tringe, 2-7725, or Josie Morgado, 2-7181.

Tuesday
4

PHYSICS & ADVANCED TECHNOLOGIES

“High-Brightness Linear and Nonlinear Compton Scattering X-Ray Source,” by Frederic V. Hartemann. 2 p.m., Trailer 2128, room 1000 (CUF). Contact: Alan J. Wootton, 2-6533.

LLNL/UC DAVIS

“Leading Change and Building Coalitions through a Public-Private Partnership,” by Robert Rodriguez, assistant special agent in charge of the U.S. Secret Service’s San Francisco District Office. 3-5 p.m., 1131 Kemper Hall, UC Davis. Contact: Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

Thursday
6

PHYSICS & ADVANCED TECHNOLOGIES/ N DIVISION

“Exploration of Vibrational and Rotational Excitations in Rare Earth Nuclei,” by William David Kulp, III, Georgia Tech. 1:30 p.m., Bldg. 211, Room 227, badge required. Contact: Paul Garrett, 3-5848, or Pat Smith, 2-0920.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

“GridDB: A Data-Centric Overlay for Scientific Grids,” by David Liu, UC Berkeley. 10 a.m., Bldg. 451, room 1025 (property protection area). For more information go to <http://www.llnl.gov/casc/calendar.shtml>. Contact: Megasn Thomas (CASC), 3-2044, or Leslie Bills, 3-8927.

Friday
7

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

“What the Martian Meteorites are Trying to Tell us About Mars: a Historical Tragedy in More Than Two Dozen Fragments,” by Ralph Harvey, Case Western Reserve University. Noon, Bldg. 319, room 205. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

CHEMISTRY & MATERIALS SCIENCE/MATERIALS SCIENCE & TECHNOLOGY DIVISION

“Coincident Electron Spectroscopy of Solids,” by Konstantin Kouzakov, Nuclear Physics Institute, Lomonosov Moscow State University, Russia. 10 a.m., Trailer 2475, room 108. Contact: Tony Gonis, 2-7150, or Linda Jones, 3-8839.

LLNL/NPS

“Scientific and Engineering Reachback in Support of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF),” by Tom Ramos, Counterproliferation Analysis and Planning Systems (CAPS). 11 a.m., Mechanical Engineering auditorium, Naval Postgraduate School. Contact: Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

Monday
10

BIOSECURITY & NANOSCIENCES LAB

“Nanostructures of Biomolecules: A New Platform in Bioanalytical Chemistry,” by Gang-yu Liu, UC Davis. 2 p.m., Bldg. 151, room 1209. Contact: Alex Noy, 4-6203, or Josie Morgado, 2-7181.

Tuesday
11

LLNL/UC DAVIS

“Biobriefcase,” by Allen T. Christian, Biodefense Division, BBRP. 4-5 p.m., location to be determined at UC Davis. Contact: Harry Radousky, 2-4478 or Brenda Foster, 3-8257.

Wednesday
12

LLNL/UC DAVIS

“The National Plant Diagnostic Network in Agricultural Society,” by Rick Bostock, UC Davis. 3 p.m., Bldg. 361 auditorium. A reception will follow. Contact: Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

Tuesday
18

CHEMISTRY & MATERIALS SCIENCE/FRONTIERS IN CHEMISTRY & MATERIALS SCIENCE

“Virus-Based Genetic Toolkit for the Directed Synthesis of Magnetic and Semi-conducting Nanowires,” by Angela Belcher, professor of Materials Science and Engineering and Biological Engineering, Massachusetts Institute of Technology. 3:30 p.m., Bldg. 155 auditorium. Refreshments will be served at 3:15 p.m. For information on Belcher and an abstract of her talk, see the Website at http://www-cms.llnl.gov/cms_frontiers_ext/index.html. Contact: Mike Fluss, 3-6665, fluss1@llnl.gov, or Kristine Ramirez, 3-4681, ramirez24@llnl.gov.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the Technical Meeting Calendar list, see the auto registration service on the Web.

AROUND THE LAB



Administrative exercise

Hal Graboske, acting deputy director for Science and Technology, presented a certificate to Joni Schuld, administrative assistant to Glenn Mara, at this week's Administrative Workshop held in Pleasanton. Schuld was recognized for initiating and continually supporting the event for the past six years. The annual workshop for administrative employees highlights their important role in the Laboratory's operations.

JACQUELINE MCBRIDE/NEWSLINE

Carrie Gutierrez of LLESA (right) leads Laboratory administrative staff in an exercise routine during the annual LLNL Administrative Workshop, which was held in Pleasanton this year. Featured speakers at this year's workshop included Jan Tulk, Lori Turpin, Susan Houghton, Tammy Jernigan, Eileen Vergino, Janet Frame, Debbie Ward, Pat Chance, Karen Hughes of Livermore's Purple Orchid Inn, Art Wong and Hal Graboske.



Laboratory employees pitch in for 'Extreme Makeover' season finale

Lab employees won't have to wait until May 23 to see how the fruits of their effort literally paid off. They can see it already in the smiles of the Cardigan-Scott family.

Earlier this week, the Cadigan-Scott family of Livermore was welcomed home to an "extreme surprise."

Hundreds of residents and contractors volunteered to remodel the home for the season finale of ABC's "Extreme Makeover: Home Edition." When the show fell short of volunteers late last week, employees from the Lab's Plant Engineering Department volunteered to spend their weekend finishing the remodel before the family arrived back home on Monday.

Though it turned out their services weren't needed, after a contractor brought in 30 additional carpenters, the department still was able to raise \$400 in four hours to donate to the family. Plant Engineering received a note from Rob Day, the show's line producer from Lock and Key Productions, thanking Lawrence Livermore employees for their donations.

Last year, Diane and Mark Cadigan, both 43, died of heart attacks within two weeks of each other. They left eight children from their blended family: Diane's two oldest daughters, Jennifer Scott, 23, Janice Scott, 22 and son Daniel Scott, 20, with Mark's daughter Kelli-Anne Cadigan, 19, and Rachael Scott,

18, all live in the same home, helping out with Jackie Scott, 16, Dolly Scott, 14 and the couple's only child together, Theresa Cadigan, 12.

Evan Rittmann of Plant Engineering did get to help out, however, in a different way. He sat in as a drum-



SCOTT WILSON/NEWSLINE

Neighbors and curious onlookers watch as the final touches are put on the extreme makeover of the Cardigan-Scott family home in Livermore Monday afternoon.

mer with the show's star Ty Pennington's band during a Saturday fund-raiser that was held for the family at Livermore High School.

Rittmann's band originally was set to be involved with the fund-raiser, but at the last minute it was bumped off the bill. "I decided that I still wanted to be involved in the show," he said. So he introduced himself to one of the producers and the next thing he knew he met Pennington.

"I am a fan of the show and so are my daughters, ages 11 and 14, and they were thrilled when dad got to go hang out in the bus with the cast for a few hours," Rittmann said. "The show went great and my '15 minutes of fame' was all for my kids. They had an opportunity to see me perform with an idol of theirs."

The Cadigan-Scott plight was submitted to "Extreme Makeover: Home Edition" and they were chosen on April 19.

They were sent on a trip to Disney World while the community volunteers went to work on the remodel.

Viewers can see the entire home at 8 p.m. May 23 on Channel 7 when the episode airs on the season finale of "Extreme Makeover: Home Edition."



CLASSIFIED ADS

See complete classified ad listings at
<https://www.ais.llnl.gov/newsline/ads/>

AUTOMOBILES

El Dorado in excellent conditin, low miles, Bose sound system, CD, Cas-sette, all power. 11.500.00 OBO 510-582-2938

1987 - Honda Civic station wagon, 130K miles, 5 speed manual, AC, Am, Fm cassette radio, good condition, one owner \$985 925-443-3074

2000 - Suburban 2500, 35,000 miles, seats 9. Excellent condition. \$18,000 209-835-8938

2001 - Mercury Cougar, 2D coupe, sun roof, spoiler, fully loaded, 6 disc CD, dk. grey, 39,000 miles, excellent condition, \$14,700 OBO. 209-914-2521

1992 - Ford Clubwagon XLT, 15 pas-senger van. Auto, PW/PD/privacy glass/tow pkg/running boards/newer trans/250k miles. Looks good,runs but needs work. \$3,000 209-892-2118

1999 - White Isuzu Trooper, 4WD, Performance Pkg., 6 Disk CD Player, Moon roof, only 67,000 miles. Great condition. 925-447-2670

1989 - Ford Mustang LX, 5.0 Liter V8, AT, PS, PW, PL, AC, tilt, cruise, alloys, 10-CD changer, \$1950/OBO 408-241-2203

2003 - Infiniti Hot G35 4dr, red/beige leather, a/t, a/c, cd, sun roof, etc., 12,500 mi, below book \$24,500, call evenings 925-373-9608

1958 - Chevy Del Rey 2-door sedan. 350 ci/385 HP,Muncie 4-speed. Fea-tured in Chevy Times for March 2004. Must see to appreciate. Asking \$23,500.00 925-626-5838

AUTOMOBILE ACCESSORIES

Tires and Rims with 6 lug nuts and caps. Stock, 2002 GMC, great condi-tion. Asking \$325 or best offer. GMC 02 chrome bumper best offer. 510-581-1863

Mazda pickup/Ford Ranger factory alloy wheels with Big O 225/70-14 tires \$200 209-824-2177

Set of four Goodyear Eagle tires 225/60R16 and Pontiac rims. Good tread/rims,mounted. All for \$90. 925-449-5716

BICYCLES

Road Bike, Eddie Bower, 1year old, Al frame, 27 speed, shock absober, plus extras. \$200 or best offer. 925-935-5004

LOOK MTB Pedals, S2R Moab, \$25, no cleats 209-612-3967

BOATS

Kidder skis life jacket, ladies small, purple & hot pink, excellent condi-tion. \$25 925-648-0671

Sailboat, OD11 DaySailer, with trail-er, have mast but no sail \$300/OBO 925-449-9294

18 Hp Johnson Outboard Motor. \$250, call for details. 209-838-3279

Outboard Motor, Johnson 9.5 hp, short shaft, \$250, 925-443-5549

CAMERAS

Brand new Canon A60 camera kit; extra 128MB compact flashcard. Bought 4MP A80. Great reviews, retails for \$199. \$140/OBO. 925-784-3731

ELECTRONIC EQUIPMENT

Pocket PC PDA with 128MB compact flash. Get organized , play games,

and listen to MP3s. Lots of acces-sories. Great condition. \$140/OBO 925-784-3731

Dell operational 98SE,650MHZ Pen-tium 3, 256K,256MB SDRAM, 27GB Drive, CD-RW, DVD, Floppy, 19inch monitor \$100 CD labeler \$8 925-447-4756

iMac - 233 MHz, 160 MB RAM, 4 GB hard drive, OS 10.2 (Jaguar), Apple-Works. Great for students. \$350 925-443-9830

HAM Radio Equipment for sale. Please call for more information. 209-483-8719

Nintendo-64, 4 controllers, 3 games, \$20. 925-462-6527

TEAC Reel to Reel Model 1250. Excellent condition. \$55.00 925-373-1522

GIVEAWAY

FREE used bricks. Come 'em get 'em in Pleasanton. 925-600-1817.

FREE Camper top (white-fiber glass) for a full sized, long bed pick up with sliding windows. FREE! 510-524-8332

Refrigerator - GE, 19.7cuft, beige, top freezer, very good condition; Upright Freezer - 62Hx32Wx26D, manual defrost, old but works fine, yellow. 925-455-1306

Lowrey electronic organ model SS. Come and get it. 408-897-3313

Metal Fence Posts and Plant Stakes. 925-455-1730

Free Pine Waterbed Frame (Queen size). The waterbed mattress and heater are also available free, if you would like these. 925-447-3994

Free hot tub. New house came with it. Previous owner says it works, but has not used it in awhile. Yours if you pickup/haul away. 2-2914 San Ramon. 408-242-8075

Plate glass mirror, 58 inch x 36 inch. Removed from bathroom remodel. You haul. 925-606-6515

HOUSEHOLD

New dryer, does not fit in remodeled area. Bought for \$450, used less than a year, Asking \$200 OBO. You pick up from my place (Oakland). 510-653-4428

WHIRLIGIG style Crib bedding. Com-forter, sheet, dustruffle, bumper, dia-perstacker, rug, swithplate, pillow & more. \$75/OBO 209-823-9617

Solid Oak Coffee Table and 2 Match-ing End Tables. \$250 for set. 209-483-8719

Large exec. desk, wrap around bridge & credenza with computer work sta-tion, light oak, cost \$2,500 new, moving, best offer before May 5 takes it! 925-426-9707

RED Metal Bunk Bed. Twin on top, double bed on bottom. Like new. \$70 925-682-2358

Double size solid oak bedframe (head and foot boards)Includes mattress and box spring, all in very good shape. \$75.00 OBO 925-960-1788

Washer, Kenmore HD cap., 3 yrs young. Works great, nothing wrong. Replaced with newer model. \$150 OBO 209-839-9757

New, in box, unfinished, John Greenleaf country bowback chairs, \$180 for 4, or \$50 each. (4 more, fin-ished, used, available) 925-462-6527

DESK, 54 x 29 inches. Dark Wood. \$30.00 925-455-1730

CHINA, Abalone 526 Golden Grain. Settings for 6 + Platter, Srvng Bowl, GrvyBoat, Crm/Sgr, S&P Shakers. \$325 or buy indiv. pieces. 925-449-

7661

Fisher-Price Dollhouse, elec. lights, sound effects, etc. Includes family, furniture, horses/stable, and working jucuzzi. \$70 or BO. 925-516-2774

Ethan Allen solid oak full size rolltop desk. Beautiful cost \$1300 sell \$400. Century child car seat,up to 40lbs \$25. 925-829-1474

Small sofa, southwestern pattern, Per-fect condition, \$200. 925-447-8845

2001 Kirby V6 Vac with carpet shamp. all acc. recon. with 1yr. warr. \$1300.00 new, \$450.00 B.O. 209-847-6534

Dining room table w/Hutch. dark wood. \$450. OBO Queen size bed-room set, w/drawers under mattress and cabnets in headboard. Light wood. \$1000 OBO 925-784-2717

Roll top desk,solid oak with locking top. Winners Only brand. excellent cond. \$500. Twin, oak bookcase headboard w/mattress. \$50 925-516-8339

LOST & FOUND

Lost paper-back book left in bicycle basket. Has my initials on the side and top and my Barnes & Noble card as a book mark. 209-892-2610

WATCH FOUND on walkway outside B132N locker rooms adjacent to loading dock. Call Joan at 4-4384 to describe and claim. 925-455-4666

MISCELLANEOUS

Garage sale on Saturday, May 1, 8:30AM-5PM; furniture, misc items. The address: 816 Seminole Dr./Liver-more. 925-371-1076

MASSAGE Table - portable, profes-sional quality w/carrying case. Teal w/wooden frame. Hardly used. \$225/OBO. 209-823-9617

YARD SALE @ 235 Orestimba Cir. Tracy, 7:00 am, May 1 & 2. Couch, Ent. Ctr., table, misc. household items. 209-836-4550

Concrete Mixer, Sears, Great for small yard projects, 110 volt, \$80 obo 925-449-3737

Used 12 ft 3-legged wooden picking or pruning ladders in good condition. \$20.00 each. 209-892-6993

Garage Sale Sat&Sun May1-2 9am-4pm Couch, dishwasher new motor, 2 lge office desk, Gas Dryer works well and Lots of Misc. 925-449-8959

Kelty full size jogging stroller, nice, paid \$300 sell \$100. Wente concert- Natalie Merchant 8/18. 2 tics- terrace row A/43-44. At cost \$142. 925-829-1474

Wallpaper. 6 rolls. Dark red marble look. Dark red leather look. Do small room or use for crafts. 925-899-9675

Huge Garage Sale, Sat April 24 Starts at 8:00am Furniture Baby Items Books Kitchen Items Equipment and more 5557 Charlotte Way, Livermore 925-961-1957

Massey Ferguson 203,Diesel 4cyl,loader,scraper,new rear tires,new paint, needs power steering work. \$4500.00 925-454-1749

MOTORCYCLES

2000 - 00 YZ125. Excel rims, Renthal bars, FMF pipe, FMF TC2 and pro circuit silencers. Bark Busters, boysen reeds. \$2800.00 OBO. 209-825-7702

1994 - Harley Davidson Electra-Glide Classic, less than 4500 miles, like new. Asking \$14,500. 650-349-5874

MUSIC INSTRUMENTS

4 PAR64 stage lamps with clamps and

road case. \$175 obo. 925-447-8845

PETS & SUPPLIES

Arab for sale (or lease). 6 yr old, vry quiet & sweet. Great on trails, good hunter prospect. \$2000 OBO. 209-482-3373

For Sale \$200: Black Female and Tan Male Chinchilla (less than a year old) Two-story cage, toys, food, bedding, and bath dust included. 925-455-8736

Black lab needs loving home. Bo is 7 years old, docile and very affection-ate. He is an outside dog. Does not chew plants or dig. 209-835-1128

Wanted: Good Home, Boxer lover for Beautiful 2 yr European Boxer, Female, Fawn with white socks and collar. Gr Champion lines. Price Negot. 925-373-3429

RECREATION EQUIPMENT

ATV, 2001 Polaris 500 HO. Virtually new, less than 50 miles. Yellow, many extras. Must sell \$6100 OBO (new \$7300) 925-960-1788

Pristine ping pong table, decent qual-ity, hardly used, always garage stored, \$20, you pick up, 925-443-8858

Saddle, Hand made Circle Y cowboy roper A-Fork.16 inch seat, 5 inch can-tle, turned stirrups, saddle strings. Excellent cond. \$750 firm 925-516-8339

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>

Oakland (montclair) - Interested in forming a carpool/vanpool for to leave Montclair @ 6:15 and leave LLNL @ 18:00 T-F 510-547-3474, ext. 4-5407

Lafayette - LaMOrinda Vanpool (also WALNUT CREEK stop at Rudgear Rd): reclining seats, reading lights, 7:45-4:45, \$105/mo (pretax reduction available) 925-943-6701, ext. 2-3005

BERKELEY - Rider/driver needed to complete a four person carpool from north Berkeley. Leaves Berkeley at 7 am; leaves LLNL at 4:40 pm. 510-524-8332, ext. 2-5949

SERVICES

Nanny needed in Livermore 4 morn-ings a week from 6:30-8:30am. for sweet, cuddly, 2 yr. old girl. Starting 08/01/04. Call for details. 925-447-3440

Housecleaning Services in Tracy area. Good References. Call now. 209-833-6467

Reliable computer training, trou-bleshooting, repair, upgrades, custom builds plus software/hardware/home networking installs. Reasonable rates. 209-327-0012

SHARED HOUSING

Livermore - room for rent near golf course, comm. pool, internet access. \$550 (incl. util.). 5 mi. from Lab. Must love dogs. 925-243-9316

Livermore - furnished room for rent. Clean/quiet. Pool. No pets/no smok-ing. \$550.00/month. Share utilities 1/3. Deposit. Mature adult. 925-449-1128

Livermore - Rm for rent, \$550/mo, \$300 dep, private phone, full privi-leges, 1/3 util, available now. 925-447-2670

Livermore - Master bed/bath in nice apartment complex 1 mile from LLNL. \$650/mo includes utilities. Pool/spa/washer/dryer, full privileges.

Available TODAY! 925-525-4999

TRUCKS & TRAILERS

1947 - Willys Jeep. Stock except new oversized brakes, Borg-Warner Over-drive. Steel top, New window frame. Tailgate not installed. BO over \$4000. By Appt. 925-373-6651

1988 - Toyota 4-Runner, 4x4, 60,000 miles on new engine & rebuilt trans-mission. Clean runs good. \$4800.00 925-443-2353

1972 - K5 Blazer, 350CID, 4X4, posi-traction, 38 gal gas tank, roll bar + extras. Needs work, \$1500/BO. 925-449-5018

1997 - El Dorado in excellent condi-tion, low miles, all power, Bose sound, new tires. 11,500.00 OBO 510-582-2938

2000 - AZ-TEX Utility trailer. Like new, single axle. L-10ft, W-5ft4in, H-6ft2in. Less than 600 mi. \$1800/OBO 925-447-4126

1998 - Dodge Ram Quad-cab New Brake job,Flowmaster exhaust system, K&N air intake system, 20 inch wheels. Great running truck! \$9500 209-835-1598

1997 - Ford F-150 Super Cab long bed, 2WD, 5SP, Power everything w/AC, bedliner, tow package, Flow-masters, 98.5K miles, great shape, \$7,200. 925-516-2774

1997 - Ford Ranger XLT. 2-tone, 4.0L V6, new 5-spd AT w/warranty, AC, cruise, tilt, bedliner, exel. cond., \$5950 925-634-6296

1993 - Rockwood 28 foot 5th wheel trailer.12 foot slide out. Air condi-tioning, Awnings, Very nice. \$9500. or B/O. 925-449-4262

2003 - Ford Exploreer XLT 2WD/V6 Loaded, A/C, dual airbags, Custom-Stereo Sony Explod Excellent condi-tion, white w/beige interior, 10,000 miles 25,000 obo 925-352-1585

VACATION RENTALS

Truckee - Tahoe Donner Cabin. 3 bedroom/2 bath + loft. Sleeps 12+. Fully equipped. Great location, plen-ty of parking. Memorial Day week-end. \$330/3 nights. 925-447-0596

SOUTH LAKE TAHOE - 3 Bedroom 2 bath Chalet, nicely furnished, all amenities, great for families. RESERVE NOW for SUMMER VACATIONS! 209-599-4644

N. Tahoe Donner - 5 bdrm home +art studio, equipped w/70in. tv & sur-round sound upstairs and down w/dish. \$200/day \$1250/wk. 925-550-2384

Solana Beach/Del Mar - Oceanfront condo, deluxe 2br., 2 1/2 ba., fully equiped, tennis, pool, jacuzzi, gated and covered parking, near San Diego attractions. 925-443-2271

Tahoe Cabin South Shore 2 blocks from Heavenly. \$375/week or \$200/weekend. Sleeps approx.7. 925-240-1615

WANTED

Looking for a rack for a ski sanger boat. A rack with speakers would be nice. 925-447-4840

Old cell phones for fundraiser to help with Cheerleading Expenses. Home 209-823-5085

Looking for 2 wooden patio chairs (preferably white). Please call 925-960-0263

WANTED: Someone to make shorts from jeans, at a reasonable price. After 6pm 925-606-8614

Wanted, Used large boxing Heavybag (approx 75-100 lbs)with mounting hardware. 925-784-8493

MOKHELE

Continued from page 1

of a policy of apartheid in 1948 shaped the direction of scientific research for the next 40-50 years. “In order for that policy to survive and the government and the nation that policy was designed to serve – and to serve is to survive — South Africa had to develop energy self sufficiency and military capabilities to support its adventurism in southern Africa and defend itself against the enemy that wants to come and destabilize.”

Apartheid also determined which universities South Africans could attend and people like Mokhele had few options. As a Sostu, Mokhele could attend only one of Africa’s eight universities where he chose to study agriculture.

But, in 1994 “something magical happened” — Nelson Mandela was released from prison and negotiations were concluded resulting in an election under an interim constitution, Mokhele said.

“The challenge in 1996 when the constitution was adopted is for us to begin the process of building a new nation and a new society,” Mokhele said, adding that the social welfare and education problems the new South Africa faced “would have made many faint hearted people despondent.”

South Africa also faces public health issues such as AIDS, drug-resistant strains of tuberculosis and malaria as well as high unemployment and crime, he said. “If you have a people who live under a draconian state like the one that existed in South Africa until 1994, when you lift the lid with a new constitution and bill of rights all sorts of liberties are taken.”

In 1994, South Africa had an “apartheid science system...oriented towards a racist political agenda,” Mokhele said. “The challenge then becomes how to marry the scientific history, the scientific culture and its institutional framework and the demands of the new society.”

Apartheid policies that “were relentlessly implemented” excluded blacks from mathematics and science education and left “black people in South Africa completely disconnected from science.”

While the number of research papers published by black South African scientists has grown from 4 percent in 1994 to 8 percent in 1998, Mokhele said the small percentage shows the thoroughness of apartheid policies.

Mokhele said he succeeded in becoming a scientist, a microbiologist, only because “I was defiant.”

Despite South Africans’ sense that the “world was a wonderful place” and Nelson Mandela’s stature as a great world statesman, foreign investors have not rushed to help build the new South Africa, Mokhele said.

Though many of these problems persist, support for the African National Congress has grown steadily in the 10 years since 1994 as shown by the ANC’s strong showing in recent elections, he said. “I’m not sure I understand why. All I can tell you is that in many ways it’s wonderful to live in that country today, particularly if you were born and raised in that country.”

Mokhele said progress in improving science education for black South Africans has been slow because it is not just a matter of implementing new policies, but of changing the way people think. “Our biggest challenge, if we want to have science-led development in our country, is to transform the relationship between science and society.

“And that’s where the telescope comes in,” he said, noting that a mission of the National Research Foundation (NRF) is to provide national research facilities, such as the telescope, to facilitate the creation of knowledge, development and innovation and thereby contribute to the quality of life of all the people of the republic.

Describing the organization’s broader missions, Mokhele said the NRF is encouraging basic science research that addresses the challenges the nation faces today as well as looking to the future. “We have to make

decisions today to get us on a path that will get us to a destination 50 years from now that will be different from today. That’s where astronomy comes in.”

He noted that South Africa has a 120-year tradition of astronomy study, which started under the British, an astronomy infrastructure that has continued to grow because of the “physical attributes of this part of the world.”

“We ask ourselves is it possible for us to contemplate leading edge astronomy as something we want to invest in today because it not only gets us to think about the future, but gets us to define ourselves. It helps us today to stake our claim among the community of nations,” Mokhele said.

The telescope project will help “drive science and math education in the schools” and “transform the relationship of science and society,” he said.

The Laboratory is involved in the \$30 million SALT project, providing coating for mirrors to be used in the telescope and an externally dispersive interferometer designed by the Lab’s David Erskine. SALT is scheduled for completion in December of this year “on budget and on time.”

Lab physicist Kennedy Reed was instrumental in bringing Mokhele to the Laboratory and made arrangements for his visit. “Mokhele’s vision of the role of science and technology in empowering the disadvantaged people in South Africa resonates with our own efforts to make the business of science and technology more inclusive of underserved populations in this country,” Reed said after the presentation.

Summarizing the “collateral benefits” of the telescope project, Mokhele said benefits would include educational empowerment; industrial empowerment; scientific training and training technologists in new technologies.

“The hope, the wish and the desire is that the continent that gets reported on either because of droughts or floods, wars or the ravages of disease,” he said, “That the children of that continent can be allowed to dream the way children are supposed to dream — through science.”

AEROSOLS

Continued from page 1

surface) aerosols. Scientists previously assumed the aerosols necessary for cloud formation started off closer to the Earth’s surface. CRYSTAL-FACE stands for Cirrus Regional Study of Tropical Anvils and Cirrus Layers — Floridal Area Cirrus Experiment.

The atmosphere has multiple layers, the lowest of which is the turbulent atmospheric boundary layer that is directly influenced by surface processes and extends from

the Earth’s surface to 2 kilometers or more in the tropics. The atmospheric boundary layer is followed by the troposphere, which varies in height from 8-10 kilometers and contains most of the atmosphere’s mass. The troposphere is then capped by the the strongly stratified stratosphere, which extends from 10 to 50 kilometers above the surface. The tropopause is the transition zone between the troposphere and the stratosphere and is approximately the altitude of commercial aircraft flight.

The computational model used in this study had to include aerosols above 6 kilometers in order to accurately simulate the large number of cloud particles that were

observed during the field experiment. Previous studies often considered aerosols from the atmospheric boundary layer only and were unable to predict the number of cloud particles observed. The results also show that polluted mid-tropospheric aerosol concentrations may affect cirrus cloud radiative properties, evolution and lifetime.

The computational model, DHARMA, used in this study was made possible by a long collaboration between David Stevens of the Lab’s Center for Applied Scientific Computing and NASA/AMES researchers. In particular, high performance parallel computing was essential to the success of this investigation.

JGI

Continued from page 1

compare and contrast SRB genomes, pitting G20 against other strains including its cousin, *D. vulgaris*.

“This jamboree has crystallized a community,” says Adam Arkin, Berkeley Lab scientist and director of VIMSS. “We have come together to see that sulfate reducers get their proper place in the biogeochemistry.”

Sulfate-reducing bacteria are conspicuous because of the product of their respiration, hydrogen sulfide (H2S), smells of rotten eggs. Producing this extremely reactive gas, one toxic to plants and animals, these bacteria thrive in anaerobic conditions of deep marine sediments where oil can be found. Another idiosyncrasy, one that researchers are seeking to tap, is their generosity in donating electrons, a process known as reduction. In association with organics in the soil SRB convert sulfate to sulfide, hence the big stink. DOE’s interest in these microbes hinges on their ability to reduce uranium from its highly oxidized state. This reaction detoxifies the metal so that it is not as harmful to humans while making it insoluble in water, effectively immobilizing it in the soil.

There are significant economic and environmental pressures compelling the study of SRB, says Gerrit Voordouw, professor of microbiology, at the University of Calgary who chose *Desulfovibrio* as his bug of study back in 1983.

“The oil industry wants to contain these bacteria because they cause souring, or production of H2S,” Voordouw said. The problem is exacerbated when drillers inject seawater, rich in sulfur, into the wells to force out the oil. Useful for liberating reserves, the practice, however,

degrades oil quality and stimulates the bugs to corrode pipes, all revealed in the microbial physiology of down-hole conditions.

“As oil and gas become more depleted we have to think about alternatives, to harness photosynthesis for converting light into hydrogen. If you want to use biological pathways, you need to understand workhorse organisms like *Desulfovibrio*,” Voordouw said. “We can take it from there.”

Judy Wall is the keeper of the G20 flame. The University of Missouri, Columbia biochemistry professor is interested in metal metabolism and in enabling applications of SRB for bioremediation. “The more we know about how it generates energy, transports things, repairs DNA, responds to environmental assaults, the better we can make some reasonable predictions.”

These include horizontal gene transfer—a mechanism believed to be essential for genetic plasticity—the ability of bacteria to adapt to new environments.

Plumbing the depths of annotation data is where the toolbox comes in. Arkin’s group took inspiration from VISTA (Visualization Tools for Alignments), a winner of the Federal Laboratory Consortium Award for Excellence in Technology Transfer developed by a team led by Berkeley Lab’s Inna Dubchak. The new Web-based tools on the VIMSS site (vimss.org) employ the “shopping cart” concept familiar to those customers of such on-line retailers as Amazon.com.

Arkin calls upon the phone book analogy to explain. “Bob Smith in San Francisco and Bob Smith in New York have nothing in common except the name. But when we load all sequences we think are Bob Smith into the cart then do analyses, we see that Bob Smith in *Desulfovibrio vulgaris* is likely the same Bob Smith that exists in *E. coli*.”

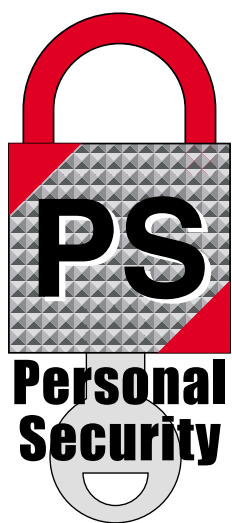
He says that a hierarchy of function is established from which knowledge-based predictions can be made, including phylogenetic trees that show the evolutionary relationships between species.

Eric Alm of VIMSS highlighted a number of firsts among the jamboree’s findings, including the identification of a particular genomic signature of sulfate-reducing bacteria and several genes of unknown function that will be the target of future study.

“We identified DNA regulatory motifs and riboswitches, RNA sequences responsible for the synthesis of vitamins and other basic building blocks necessary for growth. In addition, we identified a new regulon involved in the regulation of sulfate reduction.

“One of the major results was the first clearly resolved picture of the evolutionary history of the Proteobacteria, an ancient family of bacteria that includes the well-studied *E. coli*. The availability of whole genome sequences in the group known as Delta-proteobacteria including *Geobacter metallireducens* and *Desulfovibrio desulfuricans* G20 allowed us to build whole-genome phylogenetic trees revealing the details of the most ancient branches within the family tree for these organisms.” This work resulted from a collaboration with JGI’s own Paramvir Dehal and Pilar Francino.

Alm believes the jamboree was also the first to incorporate functional genomic data into the annotation process. Moreover, Arkin said, “we brought together people working on these organisms who don’t know each other. Something you can’t simply do in a conference call. It’s what makes this sort of large-scale science possible.”



SECURITY CORNER

Don't byte on those 'phishy' e-mail queries

By Linda Dibble
INFORMATION TECHNOLOGY

Editor's note: This column is a collaborative effort among the Safe-guards and Security Organization, Computer Security and the OPSEC Program and the first in an ongoing series. We

plan to choose topics of interest to you — personally and as an LLNL employee.

We've all been warned about scams, but even the most cautious individual can fall prey to sophisticated scams using email and the Internet. Today's unscrupulous scammers use the Internet to tap into a previously unreachable audience. These scams are sophisticated in nature and use email or Internet "pop ups" to fool people into providing personal information. These Internet scams are called "phishing" scams.

The term Phishing is derived from the word "fish." In hacker lingo, the "ph" often is used as a substitute for "f" thus "phishing" is analogous to fishing. One dictionary definition of fishing is "to seek something in a sly or indirect way." The goal of phishing is to obtain personal information, which is then used for financial gain, such as access to bank accounts, credit cards, or online retail accounts.

Phishing attacks are not new but they are increasing in frequency and sophistication. The most common avenue for a phishing scam is mass-email. These email messages are designed to look legitimate and often include Web (URL) links that closely mimic a popular Web site. The most effective phishing scams borrow graphics, characteristics and formatting from a legitimate site in order to encourage victims to provide personal information. These scams have been used to harvest usernames and passwords, Personal Identification Numbers (PINs), account numbers, credit card numbers, and social security numbers.

Recent email scams look so real that only experts are able to determine that they are scams. Embedded Web links (URLs) often direct (or redirect) your browser to sites that are not real. Some phishing scams use URLs that look official such as "www.ebay-billing.com," which are not affiliated with the victim company at all.

Most phishing scams target companies that have large consumer information data sources, such as financial institutions and online retail companies. The scam email usually requests that you confirm your billing information or enter your password. The scam usually has an urgency to the request, such as the threat your account will be closed unless you act immediately.

Below is an example of a phishing scam that recently appeared in the email boxes of several LLNL employees. An alert employee contacted the Cyber Security Program's Incident Management Team. This message contained a malicious code application disguised as an email attachment.

So what can you do if you receive an email asking you to verify personal information? To avoid getting caught by one of these scams, the nation's consumer protection agency, the Federal Trade Commission, offers this guidance:

- If you get an email that warns you, with little or no notice, that an account of yours will be shut down unless you reconfirm your billing information, do not reply or click on the link in the

email. Instead, contact the company cited in the email using a telephone number or Web site address you know to be genuine.

- Avoid emailing personal and financial information. Before submitting financial information through a Web site, look for the "lock" icon on the browser's status bar. It signals that your information is secure during transmission.

- Review credit card and bank account statements as soon as you receive them to determine whether there are any unauthorized charges. If your statement is late by more than a couple of days, call your credit card company or bank to confirm your billing address and account balances.

- Report suspicious activity to the FTC. Send the actual spam to uce@ftc.gov. If you believe you've been scammed, file your complaint at

www.ftc.gov, and then visit the FTC's Identity Theft Web site (www.ftc.gov/idtheft) to learn how to minimize your risk of damage from identity theft.

If you receive suspicious email, please contact your Information Systems Security Officer (ISSO) and forward the email message to the Cyber Security Program's Network Security Team at larson45@llnl.gov or the OPSEC Program Manager at poco2@llnl.gov.

There will be more about topics such as social engineering in

future Newsline articles. Just look for the Security Corner column if you wish to become more security aware.

Dear PayPal member,

We regret to inform you that your account is about to be expired in next five business days. To avoid suspension of your account you have to reactivate it by providing us with your personal information.

To update your personal profile and continue using PayPal services you have to run the attached application to this email. Just run it and follow the instructions.

IMPORTANT! If you ignore this alert, your account will be suspended in next five business days and you will not be able to use PayPal anymore.

Thank you for using PayPal.

An example of a phishing scam that recently appeared in the e-mail boxes of several LLNL employees.

Latest attacks prompt call for cyber vigilance

"Malicious code attacks and threats are increasing in both sophistication and frequency as perpetrators display ever increasing cleverness," according to Chief Cyber-Security Officer Mark Graff.

According to Graff, each day more than a dozen social engineering cyber-scams are released. A popular technique is to design an email messages to look official. Just recently several Laboratory employees received such messages that appear to originate from Dell. But scam email messages could appear to come from anyone or any company.

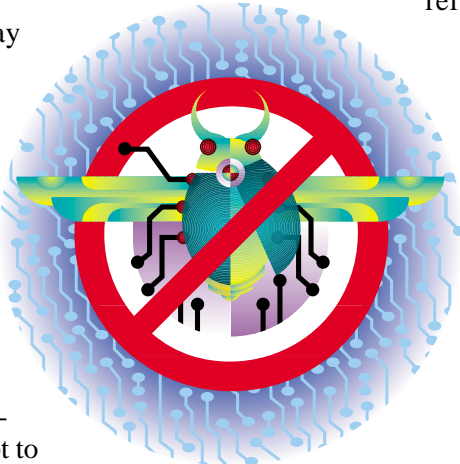
Despite their official appearance, such messages are an attempt to induce employees to click on a malicious URL link, a form of social engineering. Employees who click on the link are directed to a specially crafted website that contains malicious code, such as a virus, a worm or a Trojan horse.

To verify the legitimacy of a URL link, float your cursor over it. When you do, the address of the link will appear. There is a higher likelihood

that the link is legitimate if it shows the same address as the URL.

This test however, is not perfect, Graff cautions, "The address displayed may not reflect accurately if your system and applications do not have all current and relevant security patches applied, or more alarmingly, if an attacker is sophisticated enough to load fake address bars into your browser." He says the safest approach is to float your cursor over the URL. If the address ends in "llnl.gov," you can click on it; if not, avoid it.

In short, Graff advises, it's best to use caution when you receive any unsolicited email messages, regardless of how legitimate they appear. And use caution when clicking on links in unsolicited messages. If you see this type or any other suspicious email, please contact your ISSO, and forward a copy of the message with email headers to Computer Security at cso-imt@llnl.gov.



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